Office of Science

Multiprogram Energy Laboratories-Facility Support

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The five Office of Science (SC) multiprogram national laboratories - Argonne National Laboratory - East (ANL-E), Brookhaven National Laboratory (BNL), Lawrence Berkeley National Laboratory (LBNL), Oak Ridge National Laboratory (ORNL), and Pacific Northwest National Laboratory (PNNL) - will continue to play a critical role in the performance of today's high technology scientific research. These laboratories are government-owned, contractor-operated (GOCO) and have over 1,600 buildings with 15.5 million gross square feet of space and an estimated replacement value of more than $10 billion. Total operating funding for these laboratories is more than $3 billion a year. The Multiprogram Energy Laboratories - Facility Support (MEL-FS) Program provides line item construction funding (i.e., projects with a total estimated cost of $5,000,000 or above) to support the rehabilitation, replacement and modernization of the aging (some are 30-50 years old) general purpose infrastructure at these laboratories.

The Opportunity: The MEL-FS Program facilitates maintaining SC's leadership role in the performance of cutting-edge research in a number of areas, including the human genome project, high temperature superconductors and subatomic particle analysis. This research requires significant revitalization of the laboratories to transform the current obsolete facilities into state-of-the-art facilities which can perform the science of the 21st century.

The Challenge: The challenge is to maintain, with the funding available for infrastructure, the general purpose infrastructure in the SC Laboratory complex to ensure that it continues to support the high technology scientific research performed at the laboratories. This challenge continues to increase as the laboratories age and the backlog of infrastructure projects grows.

FY 2002 Investment Plan: In order to meet the challenge, the MEL-FS will initiate design activities for three critical infrastructure projects with a total estimated cost of $34M. The three projects are:

- The PNNL Laboratory Systems Upgrades project will renovate/reconfigure space in eight buildings allowing for increased utilization and also includes modernizing chemical fume hoods, HVAC systems, lighting and windows for increased energy efficiency. The renovation will add approximately 30 years to the facility useful life of these core research facilities. It is estimated to reduce electrical use by 20%, natural gas by 17% and operations and maintenance costs by 20%.

- The ANL-E Mechanical and Control Systems Upgrade – Phase I project will upgrade or replace 30-40 year old, deteriorated mechanical system components in 13 major laboratory buildings with a total of 1.5 million square feet that house 1,400 employees. The project will enhance system reliability and performance; improve safety; and reduce maintenance, repair, and energy costs by $600,000 per year while enhancing research productivity.

- The ORNL 50,000 square foot Research Support Center will house approximately 50 staff and will demolish approximately 4,300 square feet of excess space. The Center will include a laboratory auditorium with adjacent conference rooms, a cafeteria, visitor center and offices. The facility will serve ORNL staff and the nearly 30,000 visitors, guests, and scientific collaborators that use ORNL facilities each year. The investment will have a simple payback period of 7 years.

The MEL-FS Program will also continue to fund six on-going critical infrastructure projects with a total estimated cost of $42 million. The six projects are:

- ORNL Facilities HVAC Upgrade;
- BNL Ground and Surface Water Protection Upgrades;
- ORNL Fire Protection System Upgrades;
- LBNL Site-wide Water Distribution System Upgrade;
- BNL Electrical Systems Modifications – Phase II; and
- ANL-E Fire Safety Improvements – Phase IV.

The Benefits: Completion of the projects listed above will significantly improve the capabilities of the SC multi program laboratories to meet the challenges of maintaining its leadership role in performing highly technical research in the 21st century.

Artist's rendition of the ORNL Research Support Center which will be initiated in FY 2002